



THE
THERAPEUTICS
OF
HIGH
FREQUENCY

McINTOSH ELECTRICAL
CORPORATION
CHICAGO

ELECTRO-THERAPY

THE use of the High Frequency current in medicine has now become so prevalent that it can no longer be considered as confined to the field of the Electro-therapist. It is rather a therapeutic agent that is welcomed and can be used to great advantage by every practitioner.

Since the therapeutic use of High Frequency was first suggested by Tesla in 1891, there has been a constant development both of the technique and therapy, until today we have a wealth of clinical evidence to prove the value of Electro-therapy and in the "Hogan High Frequency" a perfected apparatus that will give a remarkable range of effects, all combined in the one apparatus, which is so compact in size as to be conveniently located in any office and so moderately priced, that its purchase is an economy.

The general practitioner, gynecologist, proctologist, neurologist, dermatologist, urologist, and eye, ear, nose and throat specialist will all find constant use for a "Hogan High Frequency", and by means of it, will be able to secure gratifying results in a wide variety of cases.

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DIATHERMY.

One of the most important uses of the High Frequency current is that known as "Diathermy". As the name indicates, this consists of a heating throughout the tissues by radiation.

The observations of Noyon and Nagelschmidt confirmed that the current passing through certain tissues of the body produced a higher temperature than was ever possible by the application of heat by conduction or "epithermy".

The fact that by Diathermy the heat is actually generated in the body, and can be concentrated in a definite locality, and accurately controlled, makes it invaluable.

Clinical evidence shows that Diathermy as a physiological agent raises the temperature of the tissue itself, increases the blood supply to the area treated, and quickens the chemical processes of metabolism: thus aiding nature in effecting a cure.

It relieves pain and tenderness by relieving pressure from exudates, softens tissues, making them better conductors of low frequency currents and more susceptible to the mechanical treatments such as vibration and massage.

An examination of the many cases in which diathermy is found effective brings strongly to the mind of the doctor the fact that it enables him to widen the scope of his practice, increase his efficiency and obtain results in cases which previously had been referred to the specialist.

No organ or part of the body is so remote that it cannot be reached by diathermy, and the depth of concentration can be regulated with almost mathematical accuracy. In surgery the use of high frequency for fulguration secures surprising results, without the shock and hemorrhage incidental to the use of the knife.

The following is but a brief outline of some of the treatments possible and a complete picture of the extent and use of diathermy in medicine can only be obtained by reference to the standard works on the subject which are listed in the back of this brochure.

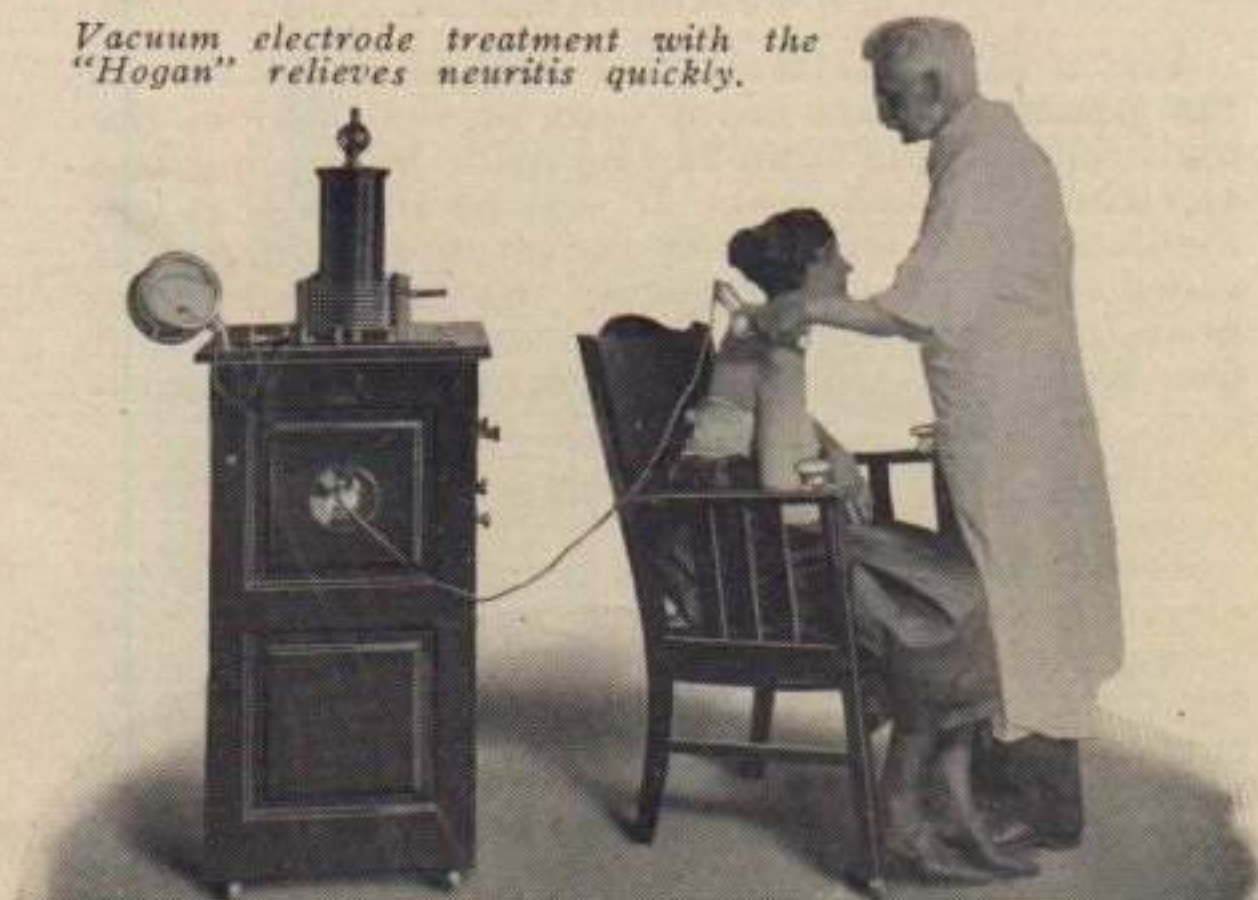
NEURITIS.

Diathermy has been found very effective in the relief of pain due to neuritis, especially in cases where no relief has been found by drugs or ionization. Radiant heat has been used in such cases with only temporary or partial relief, but the use of diathermy generally abolishes pain completely for a few hours after the first treatment and when the pain recurs it does so in a less degree. The applications are continued until permanent relief is obtained which takes generally about six applications.

SCIATICA.

Here again complete and lasting relief has been obtained in cases where other methods of treatment afforded only slight alleviation. The application of diathermy has been found in the large number of cases recorded, to reduce the sciatic pains so that even in the most severe cases there is but a slight degree of pain after a number of treatments.

Vacuum electrode treatment with the "Hogan" relieves neuritis quickly.



ARTERIO SCLEROSIS.

Laboratory tests have proven that the high frequency current can disintegrate a calcerous substance, which makes it natural to infer that it will also disintegrate the calcerous deposits on the arterial walls. This indicates the use of high frequency in cases of arterio sclerosis. The sphygmomanometer used before and after treatment shows a fall of anywhere from five to fifty cubic millimeters.

After the calcerous substances have been eliminated the arteries can regain their normal diameter and elasticity. This accounts for the large number of cases on record where the use of high frequency has given permanent relief.

The d'Arsonval method is used with a couch or chair for auto-condensation and the lowering of blood pressure without heart depression becomes more and more permanent at each application.

The use of Electro-Therapy in conjunction with regulation of the diet can therefore be said to supplant the older methods of treating arterio sclerosis and high blood pressure.

METATARSALGIA.

When the metatarsals are sore on pressure and the patient suffers from pain in this region, the diathermic application can be made by placing one electrode to each foot. It will be found that immediate relief will ensue and as the treatment is repeated about twice weekly the pain will disappear for increasingly long periods, until in about four weeks time further treatment will be unnecessary.

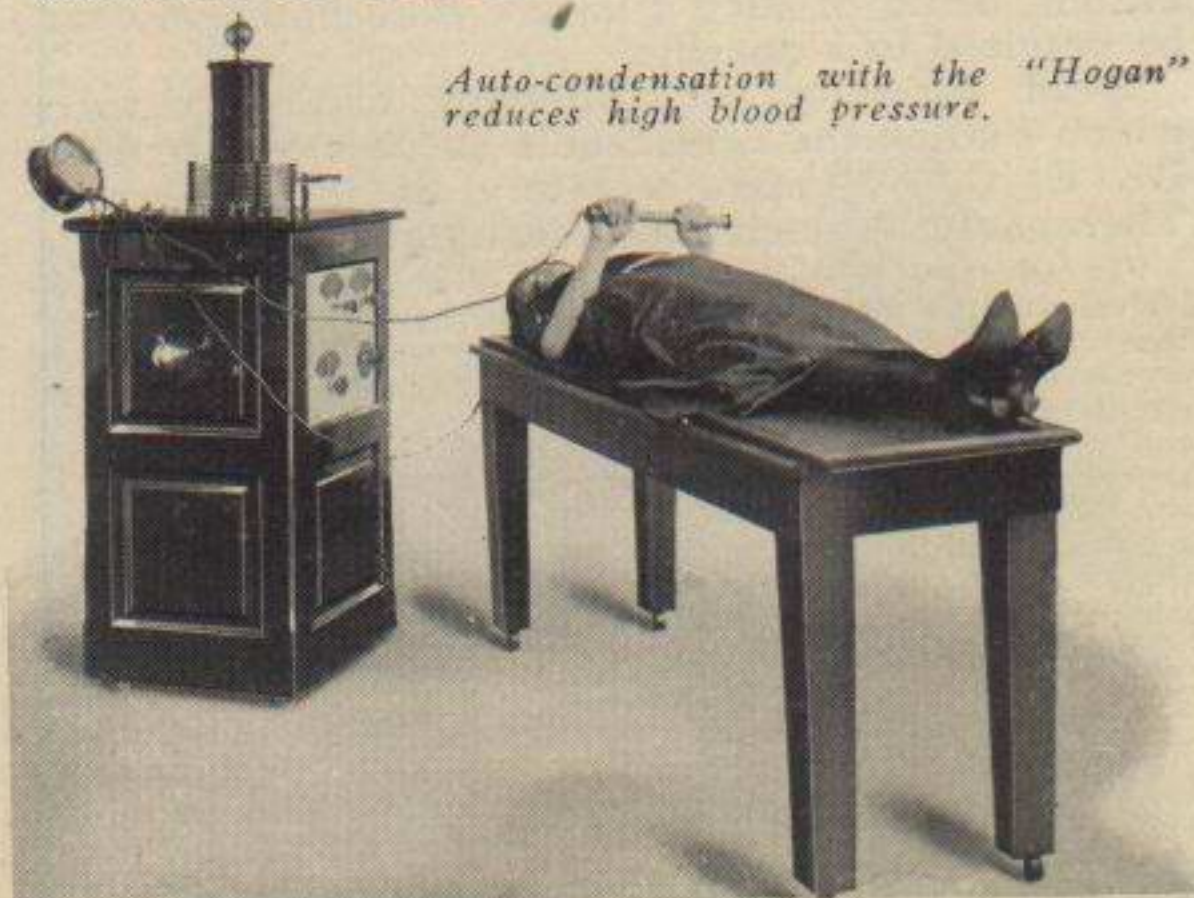
PARALYSIS

Treatment of the various forms of paralysis by electro-therapy offers perhaps the most hopeful mode of relief of this form of ailment. Galvanism, faradism and diathermy have all been tried with success. Auto conduction, bi-polar Tesla and d'Arsonval surgings are indicated. Perhaps the most general method is the application of the vacuum electrode along the course of the paralyzed muscles.

Here, doctor, is an instance where according to Gower, we are justified in doing anything that offers encouragement and in the use of electro-therapy we have so many reports of successful cases that the use of high frequency current is the most logical thing that you have to offer the patient.

GONOCOCCAL INFECTION.

As it has been shown that the gonococcus can be destroyed by heat, relatively not much higher than that of the body, the use of diathermy in gonorrhea has been used and found successful, especially in cases where parts difficult of access have become infected. Naturally diathermy is but supplementary to the routine treatment, but is a very valuable adjunct. The active hyperemia induced by the high frequency current modifies the virulence and materially shortens the term necessary to reduce a chronic infection. The method generally used is to place a large block tin electrode on the abdomen and a suitable steel sound in the urethra. The sound is connected to the other pole and the current gradually turned on until a sensation of comfortable heat in the organ is



obtained. Neiswanger states, that if this is maintained for half an hour every day for a week, then every alternate day for two weeks, the result will almost invariably be an adequate reaction with complete eradication of the disease.

TUBERCULOSIS

The devitalizing effect of diathermic heat on the bacillus has also been used to advantage in tuberculosis. For the treatment of this condition the current is not limited to a definite field but large electrodes are applied with due regard to the tendency to hemorrhage. It is stated that if a vaccine is used this treatment will increase the focal reaction and efficiency.

Diathermy is especially useful in the treatment of tuberculosis of joints. Pain is relieved and a mild inflammatory reaction is set up which results in clearing up necrotic tissue and healing with very slight deformity.

TRAUMATIC CONDITIONS.

Here, doctor, is where diathermy enables you to obtain surprising results in the relief of long standing cases of ankylosed joints, due to arthritic lesions of specific nature, or due to traumatic conditions, being of such a nature that diathermy can be counted in a specific.

Read carefully the following clinical reports which outline the remarkable success reported by Dr. E. C. Folkmar, secretary of the American Therapeutic Association, Washington, D. C.

"In all cases of disease or injury of a joint various pathological changes more or less permanent may take place. Among these are trauma of the soft tissue with exudates, obliteration or narrowing of arterial capillaries, resulting in more or less circulatory stasis and impaired nutrition; changes in quality and character of synovial fluid; roughening or hardening of articular surfaces; formation of adhesions between tendons; and accompanied in chronic cases, with more or less fibrous ankylosis and atrophy of muscles. In all these conditions, except those caused by acute infection and chronic cases caused by specific infection, or where there is bony ankylosis, "Diathermy" is indicated.

TRAUMA.

"Sprain of ankle. Case referred to me by Dr. Davenport White. Woman about 60 in evading an automobile, sustained a severe sprain of ankle and foot. Was brought to my office about three hours after the accident. Was unable to bear weight upon foot which was much swollen and very painful.

Diathermy was applied for 30 minutes, 500 to 700 milliamperes. This was followed by 10 minutes of rhythmic faradic massage. After this an adhesive boot was applied. Result, patient was able to walk out to car with little pain. The swelling was somewhat reduced. Five treatments were given during a period of 10 days. The milliamperage was increased to 900 with the second treatment. After the fourth treatment the adhesive support was not replaced. All discoloration, which was very deep disappeared after the third treatment. The five treatments gave complete restoration of physiological function. Patient was able to go city shopping without experiencing any inconvenience from the sprained ankle.

"Fracture of a rib. Case referred by Dr. Davenport White. Man, 30, sustained a fracture of a rib on a Friday. Patient was seen by Dr. White on Saturday, who applied the usual adhesive support and recommended that diathermic treatments be begun the next day. Patient suffered so much on attempted motion that he was not brought to my office until the following Wednesday. He experienced great pain in having clothing removed and in lying down on treatment table. Fortunately the adhesive splint was so applied that one electrode could be placed above the splint on the back and the other below the splint in front and thus permit the passing of the d'Arsonval current through the area of the fracture without removal of the splint. The diathermic treatment was begun with 500 milliamperes. This was maintained for thirty minutes, and was followed by 10 minutes of mild faradic rhythmic massage. Patient rose from table without pain and dressed himself without help. Treatment was repeated the next and the fourth day. After third treatment he insisted he was no longer an invalid, assisted his wife on with her coat, put on his overcoat without assistance, and drove his car home. On the following Tuesday, just 12 days after the accident and

Diathermy with the "Hogan" gives satisfactory results in arthritis.



six days after the first treatment, he came into office saying he felt as good as new. I removed the adhesive splint and had him take deep breaths, bend forward, backward and side-wise; move arm on side of fractured rib up over head, throw it out behind, and thrust it out in front. None of these exercises caused the slightest discomfort. I however, repeated the diathermic treatment as a stimulation to completion on the process of union and perfect restoration. I saw the patient six months later, and he reported that he had never had any pain after first treatment.

CHRONIC STIFF OR PAINFUL JOINTS

"Rigid fibrous ankylosis of right knee as sequella of acute articular rheumatism. Patient from Pennsylvania referred to me directly through Dr. E. G. Mitchell, in 1916. Woman about 57. Twenty-one years before recovered from articular rheumatism with right knee contracted at right angles. She was then taken to a hospital where knee was straightened and placed in a plaster cast by a surgeon. When cast was removed there was a rigid immovable knee joint, that no amount of massage or osteopathic treatment had been able to limber up. For 21 years she had walked swinging that stiff leg from the hip. Diathermic treatments, 40 minutes of 500 to 1,000 milliamperes, followed by five minutes of faradic rhythmic massage and five minutes effort at passive and active motion, were given almost daily. No perceptible change was observed until the fifth treatment, when the knee flexed so that the ball of the foot was brought to the floor. By tenth treatment the patient could go up and down stairs with right foot leading, and when seated could draw foot back and kick her chair. Sixteen treatments were given during a period of three weeks, when patient returned home with a very usable knee that could be moved through an arc of 120 degrees.

"Progressive Rheumatoid-Arthritis. Case referred to me by Dr. Thomas Claytor. Woman married, age 34. Had acute articular rheumatism for 15 years. Chronic constipation for over 15 years. Took cathartics. Aversions for certain foods, especially milk and eggs. Did not eat fruits as they had been forbidden by doctors because of acidity. Height standing, 5 feet, weight 77 pounds. Urine, negative; heart and lungs normal. Dr. Claytor reported blood count normal, hemoglobin, 90. No appetite complained of attacks of indigestion. Joints of hands were sore. The knee joints were enlarged, bent, with limited motion. The knees could be voluntarily separated only two inches, and with force only three inches. The patient was also bent at hip joints. The inguinal glands were enlarged and the tendon attachments of the muscles were rigid and tender. There was considerable atrophy of some muscles and spastic contraction of others, acrid leucorrhoea, and mucous colitis. The patient said she never sweat and was very sensitive to cold and damp and afraid to walk over a wet spot on the floor. She had been taking salicylates.

"As I believe that arthritis deformans is a nutritional disorder, due to starvation for some of the essential nutritive elements and accompanied by autointoxication of intestinal origin, I prescribed a diet for the patient. All acid forming foods, such as meat, sugar and white bread, were prohibited. Food rich in mineral salts and fruits were prescribed. To

more rapidly supply the lacking elements, patient was directed to drink 6 to 8 ounces of bran leech every morning; to drink four ounces of vegetable pot liquor at lunch time; to drink milk; to eat eggs, brown bread and apple sauce every day. All medicine and cathartics were prohibited. Bowel and vaginal irrigations were given.

"Diathermic treatments were given three times a week for the joint conditions. Sometimes the treatment was given through both knees simultaneously, and later at same session through the groins simultaneously. Sometimes, the diathermic treatment was given by placing one electrode on the anterior surface over the hip joint and the other on the posterior surface of the knee of the same leg. Both legs were treated at the same time. The diathermic treatments were followed by faradic rhythmic massage. Within two weeks patient was having daily normal bowel movements, appetite was improving, was able to drink some milk and eat an egg without distress. The circumference of the knees had decreased over an inch. Patient could voluntarily separate knees over three inches. Within a month, she had increased two inches in height, through reduction of flexion of knees and hips, could separate knees over five inches, walked with more of foot flat on floor and with longer steps. She perspired freely under treatments, felt much stronger and happier. During the next two weeks there was gradual improvement. Patient has now been without treatment for five weeks due to absence from city."

"Hogan" Diathermic treatment is considered a specific for chronic joint trouble.



USE OF VACUUM ELECTRODES.

The Hogan High Frequency offers every desirable form of this current, and has two separate and distinct methods of exciting vacuum electrodes; giving a soft, feathery, cool spray of intensely high voltage from the Oudin Resonator: or a heavier volume of current of moderately low voltage, and great heating power, from the Tesla Resonator. The Oudin current is especially valuable for delivering a localized effleuve by means of pointed metal electrodes.

Vacuum tubes are provided in many convenient forms to enable their application to various parts of the body.

The action of the current when applied by means of the vacuum tube varies according to the amount of current used. The mild current is sedative, and as it is increased, becomes stimulating and finally caustic. It produces hyperemia in a given area, increases oxygenation of blood, increases intake of oxygen, augments the output of carbon dioxide, increases the secretions and elimination of waste products, and raises the bodily heat without an increase in temperature.

Prolonged application of the tubes will give systemic effects, because although the application is essentially local, the current traverses through the body in all directions. Dr. Eberhart in his manual on High Frequency, states that the principal effects from the application of the vacuum tubes, are due to "cellular massage."

Treatment with vacuum electrodes has been found of value in the treatment of congestive headaches, neuralgias, sciatica, lumbago, to prevent the formation of abscess, in acne vulgaris, adhesions, alopecia, chorea, deafness, many genito-urinary conditions and skin and scalp diseases.

FULGURATION.

For the removal of small growths, such as warts, moles, cysts, etc., fulguration with high frequency currents affords many advantages over any other mode of treatment.

In this work it will be found that the Tesla current is indicated for surface work, such as the fulguration of moles, warts and other superficial growths, while the d'Arsonval is preferred for orificial work such as papillomata of the bladder, etc.

Doctor, in cases of acutely inflamed and hypertrophied tonsils where the patient has suffered from the septic condition and has become undernourished which shall it be? A bloody surgical operation with consequent depression of the patient's vitality, or a harmless application of fulguration with no hemorrhage and no surgical shock?



Tonsil fulguration with the "Hogan" is sure, safe and bloodless.

DIATHERMY IN SURGERY.

In an article in the "New York Medical Journal" Jan. 4th, 1919, many interesting facts are given on the value of treating enlarged or diseased tonsils by High Frequency fulguration, in preference to cutting operations. In this the author states that the electric treatment secures a reduction in the size of the tonsil in over 75% of the cases by causing a shrinkage, with healthy instead of diseased tissues as a result. There is no risk to the voice, and of course no danger of shock, hemorrhage or death.

Dr. J. V. Fruth of Connersville, Ind., reports excellent results in the fulguration of hypertrophied tonsils, using the Oudin current from the Hogan High Frequency apparatus with No. 8254 fulguration point electrode. He states that after two or three seances the tonsils became dehydrated and greatly reduced in size.

At a sanitarium in the Southern pine region given over almost entirely to tubercular cases, one of the patients required tonsillectomy and as he was in no condition to withstand the shock of a surgical operation and attendant loss of blood it was decided to send him to Philadelphia to have fulguration applied to the tonsils. This was undertaken and was performed so successfully that the head of the sanitarium decided to install a High Frequency Outfit for reduction of tonsils of all patients suffering in that respect and the plan has been carried out with great success; whereas by the older methods these patients would have suffered serious set-backs or the fear of dangerous results would have caused the condition to be neglected.

In the September, 1918 issue of the "American Journal of Electro-Therapeutics and Radiology", the following statement of W. L. Clark, M. D. Jefferson Hospital, Philadelphia, appears.

"High Frequency currents continue to play an important role in the field of surgery. It has hitherto been demonstrated that the dessication method is ideal for the treatment of benign lesions of cutaneous surfaces, mucous membranes (including growths in the bladder), cartilaginous and osseous structures; among which may be mentioned papillomas, veruccae, chon-

dromas, exostoses, moles, vascular and pigmented naevi, urethral caruncles, tattoo marks, powder marks, etc. also for localized malignant lesions, both from a curative and cosmetic standpoint. More recently other important surgical uses have been found for these currents and the results obtained have gone even beyond expectations. The more important of these is the treatment of surgical tonsils and hemorrhoids by the dessication method, and the destruction of large malignant lesions by electro-coagulation, even with extensive bone involvement; while in some instances the value is increased when used in conjunction with operative surgery, X-ray and radium. Among the anatomical locations of cancer now treated by intensive High Frequency currents may be mentioned, the oral cavity including bony structures, antrum pharynx, esophagus, breast, bladder, uterus and rectum. It seems practical to treat malignant lesions of abdominal organs after laparotomy by these methods. This has not been undertaken as yet except in the bladder after suprapubic cystotomy, but preliminary animal experimentation has already been undertaken with the view of determining the possibilities of the electro-thermic methods in the abdominal cavity."

BLADDER FULGURATION.

High Frequency has been successfully used for destroying papillomata of the bladder. The method followed by W. Girling Ball, Surgeon at St. Bartholomew's Hospital, London, is fully described in Cumberbatch's "Diathermy." No ill effects local or general have followed the operation and no recurrence of the growths has been noted.

Dr. T. Howard Plank, of the American Hospital, Chicago, employs electro-coagulation with success in the destruction of cancerous tissues and arrest of malignant growths. Dr. Plank is another of the well known electro-therapeutists who uses a "Hogan High Frequency" in his work.

The foregoing will serve to establish the value of the High Frequency current and aid those to whom these matters are unfamiliar, to respect an agent capable of accomplishing curative results in so wide a range of lesions.

THE PERFECTED APPARATUS.

Since the first experiments with electro-therapy there has been a long succession of developments in apparatus, keeping step with the clinical application of High Frequency. It is but natural that the firm of McIntosh which has been in the business of supplying the medical profession with

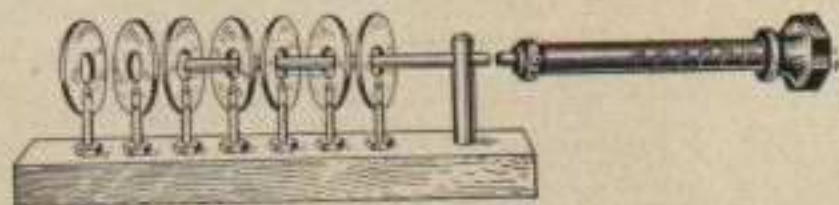
electrical apparatus for over forty years, should be a pioneer in the development and perfection of such equipment.

We now offer the Hogan High Frequency to the physician as the culmination of many years development. It is indeed the ideal and perfected high frequency apparatus. Built into it, is not only the superior material and workmanship that insure constant service without trouble or breakdown, but also a number of exclusive features which make the use of the "Hogan" apparatus a matter of satisfaction and profit in the practice of every physician.

Principal among the "Hogan" exclusive features is

THE SPARK GAP.

In machines built according to older principles the spark gaps are constructed with discs of mica or other insulating materials between the cup-like sections of the spark gap; the sparking being confined within a limited space creating a vacuum and in time puncturing the insulating discs causing a heavy arc of current and an interruption of service until the disc has been replaced which often entails considerable work.



In the Hogan High Frequency Apparatus the spark gap consists of a series of discs of a highly refractory metal, mounted upon insulating material of great heat resisting qualities, with a sliding rod running through the central apertures regulating the length of the spark; sparking in the open air inside of the cabinet which is thoroughly ventilated with the result that there are no weak parts to break down at a critical moment causing loss of time, annoyance, etc.

TRIPLE SERVICE AFFORDED BY THE "HOGAN"

In the Hogan High Frequency Apparatus are combined three distinct methods of developing high frequency current; namely, an Oudin Resonator, a Tesla Coil and a d'Arsonval Solenoid



thus affording a wide range of high frequency effects to meet every condition to be treated with the most suitable current; hot or cool vacuum electrode effects, diathermy, auto-condensation, fulguration, electro-coagulation, thermo faradic, etc.

ANOTHER ORIGINAL FEATURE

Oil Immersed Franklin Plate Condenser and High Tension Transformer assures maximum efficiency in insulation and insures against breakdown.

Every part and section is built, assembled and tested with the care and precision which have characterized the work of this firm in the forty-three years of its existence.

We are the oldest makers of X-Ray and Electro-Therapeutical apparatus in the United States and build every machine with the idea of having it enhance our reputation.

The Hogan High Frequency is the machine used by Dr. Folkmar, Dr. Plank, and most of the other leading electro-therapeutists. Among these experts it is recognized as a standard of excellence.

Therefore, Doctor, if you contemplate the installation of a High Frequency apparatus, you cannot do better than accept the judgment of these leading exponents of the art.

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Successors to McIntosh Battery & Optical Co.,
Est. 1879.

McIntosh Bldg., 223-233 N. California Ave.,
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BIBLIOGRAPHY.

The following are interesting works on the subject of physical therapy, which we carry in stock for the convenience of physicians wishing to add works of this type to their library:

"DIATHERMY" BY ELKIN P. CUMBERBATCH, M. D. An Authoritative Book. The great value of diathermy in certain cases is well known and this handy volume clearly indicates the kind of cases in which such treatment is likely to prove beneficial. The author is a recognized authority, and his book is clearly and yet concisely written with the needs of the practitioner kept well in view. 195 pages. $5\frac{1}{2} \times 8\frac{1}{2}$, with 44 illustrations, mostly original. Price, silk cloth binding, \$6.00.

"A WORKING MANUAL OF HIGH FREQUENCY CURRENTS" BY NOBLE M. EBERHART, M. D. An Up-to-the-Minute Ready Reference Guide by the leading authority on High Frequency Technique. Concise and practical. Sixth Edition—thoroughly revised, 320 pages; over 60 pages of illustrations; handsomely bound. Price \$4.00.

"ELECTRO-THERAPEUTICAL PRACTICE" BY CHAS. S. NEISWANGER, M. D. A Ready Reference Guide for physicians in the use of electricity and radiology. 22nd edition—greatly enlarged, new sections added, handy. Flexible cloth binding. Price \$4.00.

"HANDBOOK OF ELECTRO-THERAPY" BY BURTON BAKER GROVER, M. D. For practitioners and students. While the book reflects the knowledge of our best men along these lines it is practically the result of twenty-five years of research and practice of the author. Illustrated with 103 text engravings, some in colors and 6 full page plates of 12 charts. Crown Octavo—420 Pages—Extra Cloth. Price \$4.00.

"DIATHERMY IN MEDICAL AND SURGICAL PRACTICE" BY CLAUDE SABERTON, M. D. This is a practical book illustrating and describing high frequency apparatus and instruments for medical and surgical diathermy. Goes into detail regarding the physical properties and physiological effects of diathermy currents, and gives considerable concise technique for their application. A good practical book on the subject which should be read by every practitioner. Contains 33 illustrations, 140 pages, size $5 \times 7\frac{1}{2}$ inches. Price \$2.00.

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